

REMARKS/ARGUMENTS

By this Amendment, no claims have been amended, no claims have been canceled, and no new claims have been added to the application. Accordingly, claims 3-7, 9, 10, 12 and 19-33 remain pending in the application. No new matter has been added.

In the prior Office Action, the Examiner withdrew the claim rejections previously asserted in the Office Action mailed June 27, 2008. However, the Examiner rejected claims 3-5, 7, 9, 10, 12 and 19-33 on new grounds. Specifically, the Examiner rejected such claims under 35 U.S.C. §103(a) as being unpatentable over Delson, U.S. Pat. 5,513,654.

Delson discloses a condom having high coefficient of friction skin-contacting inner surface and an outer surface that has anti-blocking or release properties (see Abstract). In a discussion of prior art condom manufacturing processes, Delson notes at col. 4, line 49-56 that:

Traditionally, an anti-blocking, friction-reducing material or "dressing agent" (a dusting powder or lubricant or a combination thereof) is applied to both the exterior and interior surfaces of the sheath prior to or during removal from the core or prior to rolling up of the sheath. Typical dusting agents include talc, calcium carbonate, silica, lycopodium, corn or potato starch, or the like, or combinations thereof.

In contrast to the prior art, Delson teaches that the outer surface only of the condom should be coated with a liquid-state release material such as a curable silicone composition.

Notwithstanding that Delson teaches away from the use of traditional dusting powders in condom manufacture, the Examiner contends that:

Delson thus discloses a condom comprising a finishing powder which comprises a particulate, substantially water-insoluble (since calcium carbonate is substantially insoluble in water, see column 4, lines 42-56), inorganic compound having substantially spherical particle morphology (since a powder is substantially spherical), wherein the finishing powder is calcium carbonate (column 4, lines 42-56) which has a water solubility of

less than 0.05 g per 100 g of water (since calcium carbonate is not soluble in water) and the powder is non-immobilized (column 4, lines 42-56).

There are at least two problems with the Examiner's contentions. First, powder particles are not, by definition, substantially spherical. And second, the carbonates conventionally used in condom manufacture in particular are not substantially spherical.

Applicant has attached copies of seven dictionary definitions for the word "powder". None of the definitions defines a "powder" as being formed of substantially spherical particles. On the contrary, a "powder" consists of fine particles without any specification as to the morphology of the particles. For example, Chambers Concise Dictionary defines a powder as "any substance in the form of fine, dust-like particles." (Ex. 1) Similarly, the Larousse Dictionary of Science and Technology defines a powder as "discrete particles of dry material in the range 0.1 - 1000 µm." (Ex. 2) As noted in the following table, various on-line dictionaries also set forth similar definitions for the noun "powder":

On-Line Dictionary Definitions For The Noun "Powder"

| <u>Source</u> | <u>Definition</u> |
|--------------------------------------|--|
| dictionary.babylon.com (Ex. 3) | Finely ground material, material pulverized to the consistency of dust. |
| www.merriam-webster.com (Ex. 4) | Matter in a finely divided state; particulate matter. A preparation in the form of fine particles especially for medicinal or cosmetic use. |
| ardictionary.com (Ex. 5) | The fine particles to which any dry substance is reduced by pounding, grinding, or triturating, or into which it falls by decay; dust. |
| www.thefreedictionary.com (Ex. 6) | A substance consisting of ground, pulverized, or otherwise finely dispersed solid particles. Any of various preparations in the form of powder, as certain cosmetics and medicines. |
| www.yourdictionary.com (Ex. 7) | Any dry substance in the form of very fine, dust-like particles, produced by crushing, grinding, etc. |

None of the foregoing dictionary references specify that a "powder" must have a substantially spherical particle morphology. In fact, powders can have any morphology. Substantially spherical particle morphologies are therefore not an inherent or required characteristic of a "powder."

The reference in Delson to "calcium carbonate" was in the context of traditional dusting powders. Thus, a person having ordinary skill in the art would recognize this as a reference to standard calcium carbonate, which was commonly used as a condom dusting powder at the time of the present invention.

The instant specification teaches at page 2, lines 18-20 that "the carbonates [calcium carbonate and magnesium carbonate] used up till now have been produced by standard manufacturing processes and these carbonates have irregular or spicula particle morphology."). Fig. 2 of the present application is a micrograph of standard basic magnesium carbonate, and such figure clearly shows that standard basic magnesium carbonate does not have a substantially spherical particle morphology. On the contrary, it has an irregular, non-spherical particle morphology.

The Handbook of Pharmaceutical Excipients (Ex. 8) includes several micrographs that demonstrate that calcium carbonate powders are generally irregular, rough and spicula: they are not substantially spherical.

Applicant also notes that Table 1 of Kang et al. (Journal of Applied Toxicology, Vol. 12(6) (1992), pgs. 443-449), which was relied upon by the Examiner in prior Office Actions, identifies a variety of dusting powders and states that such powders have a variety of particle morphologies including irregular, rough rounded, cuboid and so on. The Kang et al. reference describes calcium carbonate powders as being "single cuboid crystals and aggregates." This is additional evidence that refutes the Examiner's contention that calcium carbonate has a substantially spherical morphology.

Claim 12 of the present application claims:

A condom comprising a finishing powder which comprises a particulate, substantially water-insoluble, inorganic compound having an average circularity factor of 15 or below, wherein the circularity factor for each particle used to generate the average is measured according to the formula:

$$\text{circularity factor} = p^2/A$$

where p is the perimeter of a 2-D image of the particle and A is the area of the 2-D image of the particle.

The prior art simply does not teach a condom as claimed. Applicant recognized that use of standard condom dusting powders (including the standard calcium carbonate-based dusting powders mentioned in Delson) leads to problems such as poor reduction of friction and impedance of lubricant migration. Delson does not suggest that these problems can be overcome through the use of a particulate, substantially water-insoluble, inorganic compound having an average circularity factor of 15 or below as measured in accordance with the claimed formula. There is no teaching in Delson or in any prior art of record that the morphology of the particles in dusting powders is of any importance whatsoever. Thus, there is no teaching or suggestion in Delson that the use of particles having a substantially spherical particle morphology is associated with any particular benefit. As noted above, Delson simply refers to the use of calcium carbonate dusting powders, with no further qualification as to the nature of the particles, and therefore the skilled person would understand Delson to refer to standard calcium carbonate powders, which were commonly in use at the time. Delson therefore reflects the general view in the field prior to applicant's invention that standard calcium carbonate powders were perfectly acceptable for use as condom dusting powders, and that advantages could only be obtained through the use of a liquid-state release agent such as taught by Delson. Applicant's invention, which specifies the use of substantially spherical inorganic particles, is therefore clearly not obvious in view of Delson.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge the same to Deposit Account No. 18-0160, Order No. AAT-15784.

Application No. 10/522,634
Amendment dated March 25, 2009
Reply to Office action of December 30, 2008

Respectfully submitted,
RANKIN, HILL & CLARK LLP

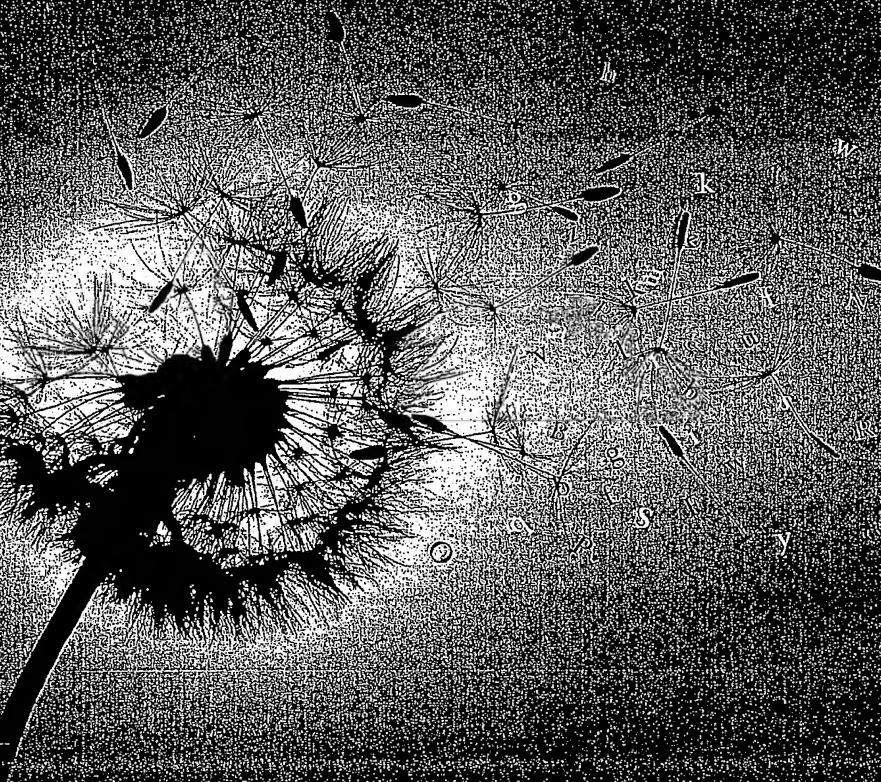
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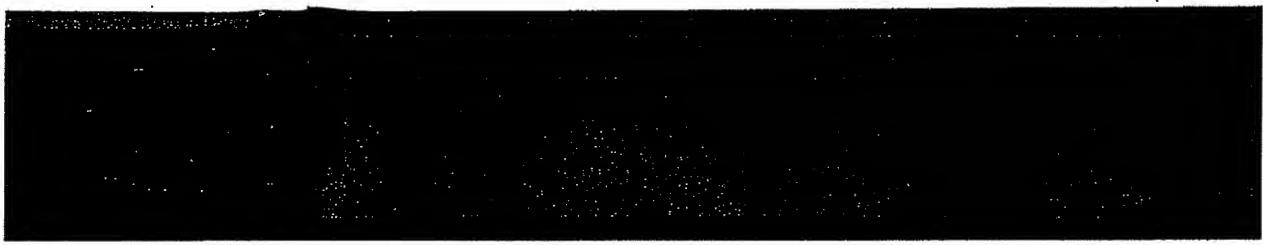
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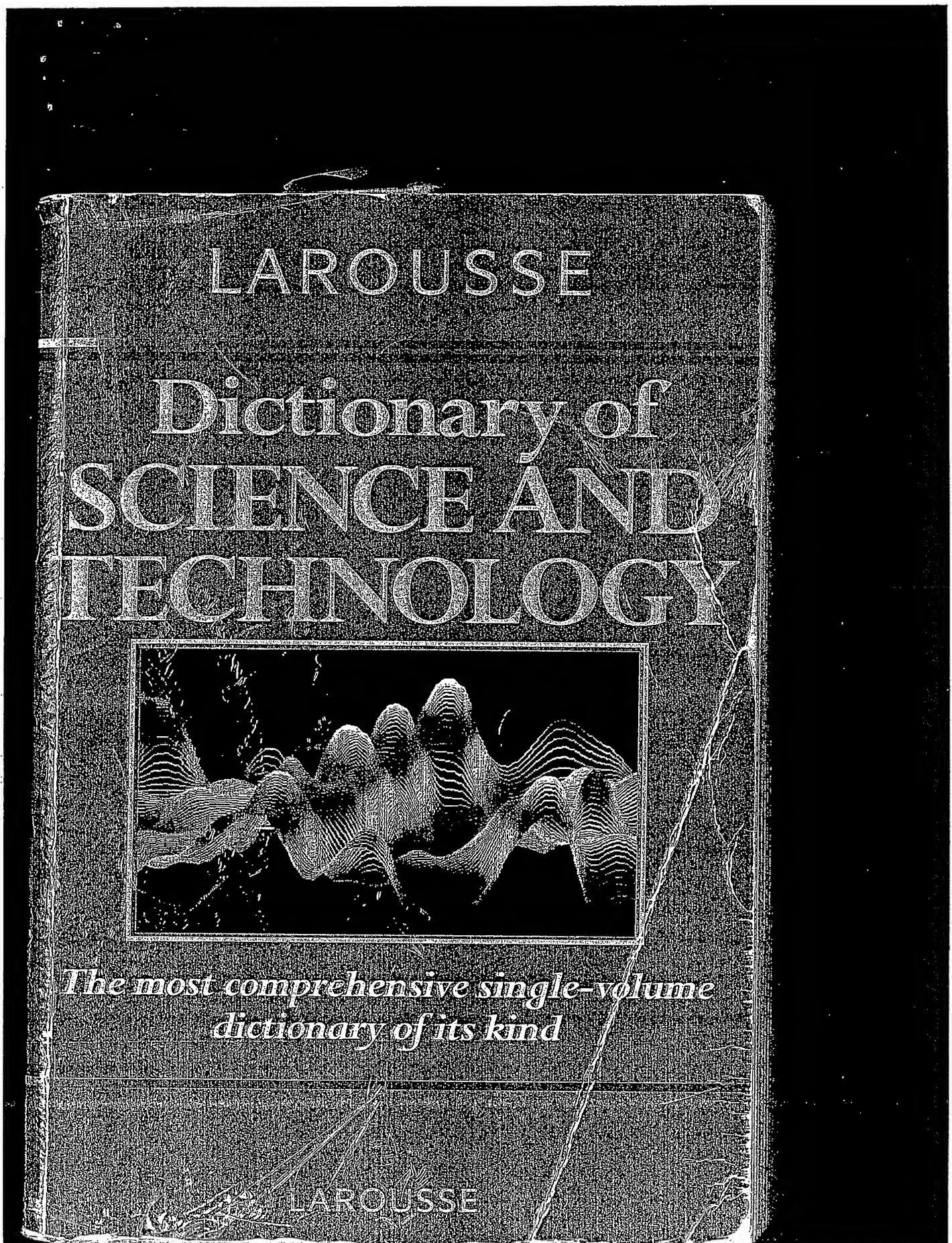
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ISBN 0550 10072 5

Preface
Using the dictionary
Model of dictionary
Abbreviations used
Pronunciation guide
Chambers Concise Dictionary
Supplement

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Printed and bound in Great Britain by Clays Ltd, St Ives plc

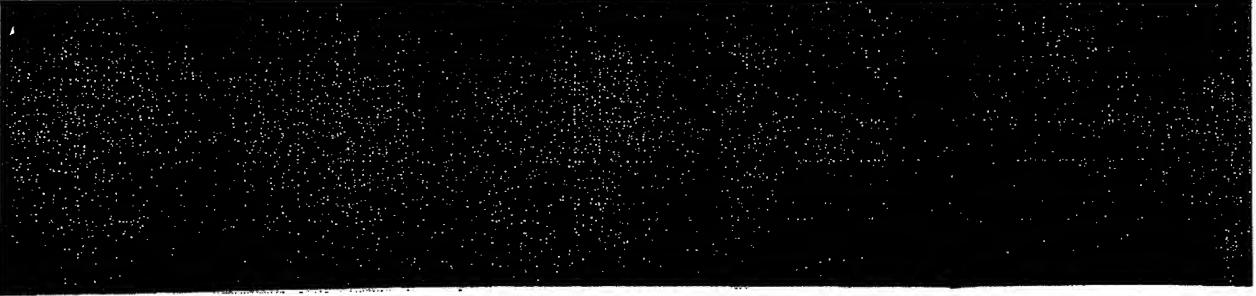


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Content

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This edition first published by Larousse 1995

Preceding edition published in the UK under the title *Chambers Science and Technology Dictionary* by W & R Chambers Ltd 1988, and by agreement in North America under the title *Cambridge Dictionary of Science and Technology*First edition published (as *Chamber's Technical Dictionary*) in the UK by W & R Chambers Ltd 1940, revised 1958 (as *Chambers Dictionary of Science and Technology*), 1971, 1974, and 1984 (as *Chambers Science and Technology Dictionary*)

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Abbreviations

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British Library Cataloguing in Publication Data
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Library of Congress Catalog Card Number 94-73123

ISBN 0-7523-0010-5 (hardback)

ISBN 0-7523-0011-3 (paperback)

The publisher would like to thank Jack Weigel, Coordinator
of the Science Library at the University of Michigan/Ann Arbor,
for his invaluable assistance in reviewing the material for this volume.

pot furnaces

bottom, which is placed in a tank furnace so that it reaches below the glass level. It protects a worker gathering glass on a pipe or iron from furnace gases; also, the glass here is somewhat cooler than that in the main part of the furnace, where melting is taking place. Also *boot, hood*.

pot furnaces (Glass) Furnaces in which are set a number of *pots*. They may be: (1) direct-fired from below; (2) gas-fired from below through a central opening in the circular sieve, using the recuperative principle; (3) fired through ports in the sieve or in the walls, the waste gases escaping through similar openings. In the last-named process, which holds generally for non-circular furnaces, the regenerative principle may be used.

Potier construction (ElecEng) A graphical construction for determining the reactance, armature reaction, and regulation of a synchronous generator from the open-circuit, short-circuit and zero-power factor characteristics.

Potier reactance (ElecEng) The reactance of a synchronous machine as determined by the Potier construction.

pot magnet (ElecEng) One embracing a coil or similar space, excited by current in the coil or a permanent magnet in the central core. Main use is with a circular gap at an end of the core for a moving coil. Miniature split-sintered pot magnets are also used to contain high-frequency coils.

potometer (Bot) An apparatus to measure the rate of uptake of water by a plant or a detached shoot etc and often, thus, indirectly to estimate transpiration.

pot still (Chem) A still consisting of a boiling vessel with condenser attached. The use of a fractionating column is optional. Used for batch distillation.

potstone (Min) A massive variety of steatite, more or less impure.

Potter-Bucky grid (Radio) Type of lead grid designed to avoid exposure of film to scattered X-radiation in diagnostic radiography. Mechanical oscillation of the grid eliminates reproduction of the grid pattern on the radiograph.

potters' clay (Geol) See ball clay.

Pott's disease (Med) *Spinal caries*. Tuberculous infection of the spinal column.

Pott's fracture (Med) Fracture dislocation of the ankle-joint, the lower parts of the tibia and the fibula being broken.

potty-putty (Eng) TN for silicone polymer. Also *bouncing putty*. See viscoelasticity.

pouch (Zool) Any sac-like or pouch-like structure; as the abdominal brood pouch of marsupials.

poughite (Min) A hydrated sulphate and tellurite of iron, crystallizing in the orthorhombic system.

poultice corrosion (Eng) That which occurs in pockets or on ledges particularly in cars subject to salt spray and dirt.

pond (Build) See pond.

pound (Genrl) The unit of mass in the old UK system of units established by the Weights and Measures Act (1856), and until 1963 defined as the mass of the Imperial Standard Pound, a platinum cylinder kept at the Board of Trade. In 1963 it was redefined as 0.45359237 kg. The US pound is defined as 0.4535924277 kg.

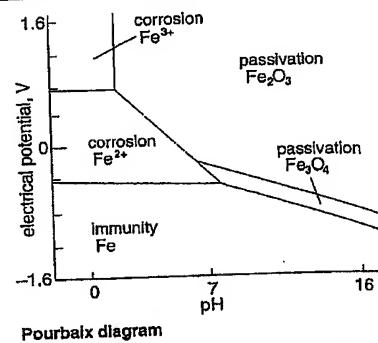
poundal (Phys) Unit of force in the foot-pound-second system. The force that produces an acceleration of 1 ft s^{-2} on a mass of 1 pound. Symbol pdl. $32.2 \text{ pdl} = 1 \text{ lbf}$ (lb wt); $1 \text{ pdl} = 0.138255 \text{ N}$.

pound-calorie (Genrl) See centigrade heat unit.

pounding (Ships) The heavy falling of the fore end of the ship into the sea when it has been lifted clear of the water by wave action. Also striking the ground under the ship

powder-post beetle attack

chemistry and the prediction of metallic corrosion behaviour. The example in the figure represents the relationship for the system iron-water-air at 25°C.



pouring basin (Eng) Part of the passage system for bringing molten metal to the mould cavity in metal casting. It is provided on large moulds, next to the sprue hole top, to simplify pouring and to prevent slag from entering the mould. See fig. at moulding.

pour point (Chem, MinExt) The lowest temperature at which a petroleum-based oil, chilled under test conditions, will flow.

powder (Eng, PowderTech) Discrete particles of dry material in the range 0.1–1000 µm.

powder core (ElecEng) Core of powdered magnetic material with an electrically insulating binding material to minimize the effects of eddy currents which are used for high-frequency transformers and inductors with low loss in power.

powder density (Plastics) The mass in grams of 1 cubic centimetre of loose moulding powder.

powderless etching (Print) The etching of line blocks in one stage without recourse to dragon's blood between a series of etches, using specially designed etching baths with several features including close temperature regulation, planetary movement of the plate, and controlled application of the etching fluid. A measured quantity of special inhibitor is added to the etchant and this forms a protecting film over the metal to control the progress of the etch, by protecting the sides of the lines from undercutting, and stopping the etch when a suitable depth is reached. Originally introduced for line work only, on magnesium alloy, it has been adapted for half-tone and is particularly suitable for combined work using micrograin zinc or copper.

powder metallurgy (Eng) The working of metals and certain carbides in powder form by pressing and sintering. Used to produce self-lubricated bearings, tungsten filaments and shaped cutting inserts (carbide). See cemented carbides.

powder method (Min) See powder photography.

powder photography (Min) Method of identification of minerals or crystals, in which the powdered preparation, mounted vertically in a special camera in which it rotates, is subjected to a suitably modified beam of X-rays. The pattern, characterized by a set of concentric rings produced by rays diffracted at the Bragg angle relative to the incident beam, is diffracted onto a surrounding strip of film to give positive identification. Also powder method.

powder porosity (PowderTech) The ratio of the volume of open pores to the total

powder technology

powder technology (G) production and han analysis and the prope powdery mildev (Bot eg cereals and apples, order Erysiphales.

power (Maths) An exp numeral placed above quantity, which indi quantity is multiplied power (Phys) Rate of c second and expressed. The foot-pound-second which is a rate of w horsepower is equivalent

power (Stats) The cor error of the second ki rejection of the status favour of a specified i power amplification a given signal to a lev or circuits, the ratio expressed in decibels.

power amplifier (Elec required power outp linear distortion, gai cases, the voltage gai Also power unit.

power-assisted cont wherein the pilot is a acting hydraulic jack power-assisted ste hydraulic ram conn assists the steering hydraulic pump drive a valve which respo wheel.

power breeder (Nu designed to produce power budget (Tele the planning of a con account such factors ageing of compone required to achieve a the lifetime of the li

power circuit (ElecE electrical installatio other than fixed lig

power coefficient (i a reactor with inc reactor, due to te moderator and coo temperature coeffici temperatures throu amount.

power component power control rod (power level of a n absorbing rod cont may be a fuel rod o

power controls (Ae Where movement c power system, co electrohydraulic or duplicated (power rams) and both ci bus. Reversion to systems, but the t preserve circuits and controls, q-feel.

power demodulate power density (Nuc unit volume of a re

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Definition of Powder

Babylon English-English

v. grind to dust, pulverize into very fine particles; apply powder, dust with powder
n. finely ground material, material pulverized to the consistency of dust

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Powder Definition from [Language, Idioms & Slang Dictionaries & Glossaries](#)

Webster's Revised Unabridged Dictionary (1913)
(v. t.)
To sprinkle with salt; to corn, as meat.

(v. t.)
To sprinkle with powder, or as with powder; to be sprinkled; as, to powder the hair.

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(v. t.)

To reduce to fine particles; to pound, grind, or rub into a powder; to comminute; to pulverize; to triturate.

(v. i.)

To use powder on the hair or skin; as, she paints and powders.

(v. i.)

To be reduced to powder; to become like powder; as, some salts powder easily.

(n.)

The fine particles to which any dry substance is reduced by pounding, grinding, or triturating, or into which it falls by decay; dust.

(n.)

An explosive mixture used in gunnery, blasting, etc.; gunpowder. See Gunpowder.

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WordNet 2.0

Noun

1. a solid substance in the form of tiny loose particles; a solid that has been pulverized

(synonym) pulverization, pulverisation

(hypernym) solid

(derivation) powderize, powderise, pulverize, pulverise

2. a mixture of potassium nitrate, charcoal, and sulfur in a 75:15:10 ratio which is used in gunnery, time fuses, and fireworks

(synonym) gunpowder

(hypernym) explosive

3. any of various cosmetic or medical preparations dispensed in the form of a powder

(hypernym) toiletry, toilet article, toiletries

(hyponym) araroba, Goa powder, chrysarobin

Verb

1. apply powder to; "She powdered her nose"; "The King wears a powdered wig"

(hypernym) make up

(hyponym) talc

2. make into a powder by breaking up or cause to become dust; "pulverize the grains"

(synonym) powderize, powderise, pulverize, pulverise

(hypernym) disintegrate

(verb-group) powderize, pulverize, pulverise, powderise

(derivation) pulverization, pulverisation

Australian Slang

keep out of here

1. (of a female) visit the ladies' room or toilet; 2. (jocular) snort cocaine

weak or effeminate male

depart; disappear

❖ hEnglish - advanced version**powder**

you can click anywhere, but just don't click here.

powder

\'pow"der\ (?), n. [oe. poudre, pouldre, f. poudre, of. also poldre, puldre, l. pulvis, pulveris: cf. pollen fine flour, mill dust, e. pollen. cf. polverine, pulverize.]

1. the fine particles to which any dry substance is reduced by pounding, grinding, or triturating, or into which it falls by decay; dust. grind their bones to powder small.

2. an explosive mixture used in gunnery, blasting, etc.; gunpowder. see gunpowder.

[similar words\(52\)](#)

[rochelle powder](#)[jesuits' powder](#)[powder magazine](#)[powder hoy](#)[powder hose](#)[detonating powder](#)[neptune powder](#)[powder of projection](#)[persian powder](#)[powder monkey](#)[powder mine](#)[powder-down patch](#)[bronze powder](#)[lycopodium powder](#)[ink powder](#)[baking powder](#)[bleaching powder](#)[powder-posted](#)[powder room](#)[vulcan powder](#)[powder puff](#)[toilet powder](#)[white powder](#)[hercules powder](#)[washing powder](#)[tooth powder](#)[curry powder](#)[powder post](#)[dover's powder](#)[putty powder](#)[hair powder](#)[jelly powder](#)[giant powder](#)[carob powder](#)[talcum powder](#)[atlas powder](#)[antimonial powder](#)[built-soap powder](#)[bath powder](#)[take a powder](#)[goa powder](#)[mica powder](#)[worm powder](#)[seidlitz powder](#)

yeast powder
gravel powder
james's powder
insect powder
powder down
powder-down feather
powder compact

[Next >>](#)

dusting powder

Concise English-Irish Dictionary v. 1.1
púdar *m.*

English Phonetics
['paʊdə]
www.interactiveselfstudy.com

JM Welsh <=> English Dictionary
Deintlwch = n. tooth powder

Ffylor = n. dust, powder

Liwch = n. dust, or powder

Meilon = n. powder, flour

Peillion = n. fine flour, powder

Pylor = n. dust, powder

Pyloru = v. to powder

Pyloryn = n. a grain of powder



Powder Definition from Social Science Dictionaries & Glossaries

Dream Dictionary

To see powder in your dreams, denotes unscrupulous people are dealing with you. You may detect them through watchfulness.



Powder Definition from Arts & Humanities Dictionaries & Glossaries

English-Latin Online Dictionary

pulvis

The Harry Potter Glossary

A fine powder which allows wizards to travel from one place to another by going into the fireplace, and saying the name of the place you want to go to.

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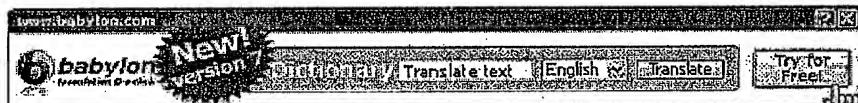
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RGB Colours

RGB: 176;224;230

Hex: B0E0E6

See example...



Powder Definition from Entertainment & Music Dictionaries & Glossaries

English to Federation-Standard Golic Vulcan

grazhiv



Powder Definition from Encyclopedia Dictionaries & Glossaries

W Wikipedia English - The Free Encyclopedia

Powder may refer to a number of topics, including:

- Powder material composed of very fine particles that are not cemented together
- Powder (film), a 1995 film
- Powder (band), a mid-1990s Britpop band.
- Powder (doom metal band), a Filipino doom metal band formed by composer and songwriter Nephi Malit
- Powder (book), a 2000 book by Kevin Sampson
- Powder blue, a color
- Powder, a song from the soundtrack of Cowboy Bebop: Knockin' on Heaven's Door
- POWDER (W3C), a W3C Working Group that is specifying a protocol for publishing descriptions of (e.g. metadata about) Web resources using RDF, OWL, and HTTP.



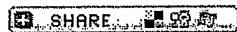
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EXHIBIT 4

powder - Definition from the Merriam-Webster Online Dictionary

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powder

Entries 1 to 10 of 23. Next 10

On Off

1 powder (verb)

2 powder (noun)

Powder

baking powder

Main Entry: **2**powder

Function: *noun*

Usage: *often attributive*

Etymology: Middle English *poudre*, from Anglo-French *pudre*, *podre*, from L *pulver-*, *pulvis* dust; probably akin to Sanskrit *palāva* chaff

Date: 14th century

1 : matter in a finely divided state : particulate matter

2 a : a preparation in the form of fine particles especially for medicinal or cosmetic use b : fine dry light snow

3 : any of various solid explosives used chiefly in gunnery and blasting

— **pow·der·less** \-ləs\ *adjective*

— **pow·der·like** \-lik\ *adjective*

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APA Style

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Powder¹

Definition: The fine particles to which any dry substance is reduced by pounding, grinding, or triturating, or into which it falls by decay; dust.

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Powder²

Definition: An explosive mixture used in gunnery, blasting, etc.; gunpowder. See Gunpowder.

Powder³

Definition: To reduce to fine particles; to pound, grind, or rub into a powder; to comminute; to pulverize; to triturate.

Powder⁴

Definition: To sprinkle with powder, or as with powder; to be sprinkled; as, to powder the hair.

Powder⁵

Definition: To sprinkle with salt; to corn, as meat.

Powder⁶

Definition: To be reduced to powder; to become like powder; as, some salts powder easily.

Powder⁷

Definition: To use powder on the hair or skin; as, she paints and powders.

powder⁸

Definition: any of various cosmetic or medical preparations dispensed in the form of a powder

powder⁹

Definition: a solid substance in the form of tiny loose particles; a solid that has been pulverized

powder¹⁰

Definition: a mixture of potassium nitrate, charcoal, and sulfur in a 75:15:10 ratio which is used in gunnery, time fuses, and fireworks

powder¹¹

Definition: apply powder to; "She powdered her nose"; "The King wears a powdered wig"

powder¹²

Definition: make into a powder by breaking up or cause to become dust; "pulverize the grains"

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EXHIBIT 6

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pow·der (pou'der)
n.
1. A substance consisting of ground, pulverized, or otherwise finely dispersed solid particles.
2. Any of various preparations in the form of powder, as certain cosmetics and medicines.
3. An explosive mixture, such as gunpowder.
4. Light dry snow.
v. **pow·dered**, **pow·der·ing**, **pow·ders**
v.tr.
1. To reduce to powder; pulverize.
2. To dust or cover with or as if with powder.
3. *Slang* To defeat handily or decisively.
v.intr.
1. To become pulverized; turn into powder.
2. To use powder as a cosmetic.

Idioms:
keep (one's) powder dry
To be ready for a challenge with little warning.
take a powder
To make a quick departure; run away.

[Middle English poudre, from Old French, from Latin pulvis, *pulver-*.]

pow·der·er *n.*

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powder
Noun
1. a substance in the form of tiny loose particles
2. a medicine or cosmetic in this form
Verb
to cover or sprinkle with powder [Old French *poldre*, from Latin *pulvis* dust]
powdery *adj*

[Collins Essential English Dictionary](#) 2nd Edition 2006 © HarperCollins Publishers 2004, 2006

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Noun 1. **powder** - a solid substance in the form of tiny loose particles; a solid that has been pulverized



pulverisation, pulverization

solid - matter that is solid at room temperature and pressure

2. **powder** - a mixture of potassium nitrate, charcoal, and sulfur in a 75:15:10 ratio which is used in gunnery, time fuses, and fireworks



gunpowder

explosive - a chemical substance that undergoes a rapid chemical change (with the production of gas) on being heated or struck

3. **powder** - any of various cosmetic or medical preparations dispensed in the form of a pulverized powder

araroba, chrysarobin, Goa powder - a bitter yellow powder used to treat skin diseases

aspirin powder, headache powder - a powdered form of aspirin

baby powder - powder used to prevent a baby's diaper from chafing

Dover's powder - a medicinal powder made essentially of ipecac and opium; formerly used to relieve pain and induce perspiration

face powder - cosmetic powder for the face

medicament, medication, medicinal drug, medicine - (medicine) something that treats or prevents or alleviates the symptoms of disease

bath powder, dusting powder, toilet powder - a fine powder for spreading on the body (as after bathing)

toilet articles, toiletry - artifacts used in making your toilet (washing and taking care of your body)

Verb 1. **powder** - make into a powder by breaking up or cause to become dust; "pulverize the grains"

pulverize, powderise, powderize, pulverise

powderise, powderize, pulverise, pulverize - become powder or dust; "When it was blown up, the building powdered"

disintegrate - break into parts or components or lose cohesion or unity; "The material disintegrated"; "the group disintegrated after the leader died"

2. **powder** - apply powder to; "She powdered her nose"; "The King wears a powdered wig"

make up - apply make-up or cosmetics to one's face to appear prettier; "She makes herself up every morning"

talc - apply talcum powder to (one's body)

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powder

noun 1. **DUST, pounce (rare) talc, fine grains, loose particles**

verb 2. **DUST, cover, scatter, sprinkle, strew, dredge**

verb 3. **GRIND, crush, pound, pestle, pulverize, granulate**

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Translations

Select a language: _____

powder

n powder [ˈpaʊdə]

1 any substance in the form of fine particles *soap powder; milk-powder.*

2 a special kind of substance in this form, used as a cosmetic etc *face-powder*; *talcum powder*.

3 formerly, gunpowder *powder and shot*.

v

to put powder on (one's face or body) *She powdered her nose.*

adj powdered

in the form of fine particles of dust *powdered chocolate.*

adj powdery

like powder *powdery soil.*

powder puff

a piece of very soft material used to apply face-powder etc.

n powder room

a women's restroom.

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References in classic literature

What sort of a Magic Powder was it that made your friend the Pumpkinhead live?
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Hiram Sloane told me the other day that a big envelope addressed to the Rollings Reliable Baking Powder Company of Montreal had been dropped into the post office box a month ago, and she suspected that somebody was trying for the prize they'd offered for the best story that introduced the name of their baking powder.
[Anne of The Island](#) by Montgomery, Lucy Maud [View in context](#)

Well, when it is quite finished this compound will be the wonderful Powder of Life, which no one knows how to make but myself.

[The Patchwork Girl of Oz](#) by Baum, L. Frank
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powder

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powder definition

pow·der (pou'dər)

noun

1. any dry substance in the form of very fine, dustlike particles, produced by crushing, grinding, etc.
2. a specific kind of powder bath powder, face powder
3.
 - a. a drug in the form of powder
 - b. a dose of this
4.
 - a. gunpowder
 - b. Etymology: prob. in reference to swift explosion of powder
SLANG a sudden or impulsive rush: obs. or Brit. dial. except in the slang phrase ★
take a powder, to run away; leave
5. fine, light, powdery snow, considered best for skiing

Etymology: ME *poudre* < OFr < L *pulvis* (gen. *pulveris*), dust: see pollen

transitive verb

1. to sprinkle or cover with or as with powder
2. to apply cosmetic powder to (the body, face, etc.)
3. to make into powder; pulverize

intransitive verb

1. to be made into powder
2. to use powder as a cosmetic

Related Forms:

- **powderer** **pow'·derer** **noun**

powder idioms

keep one's powder dry

Etymology: in reference to gunpowder

SLANG to be ready for action

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powder synonyms

powder

n.

particles, film, pulverulence, powderiness, explosive powder, medicinal powder, cosmetic powder; see also cosmetic, explosive, medicine 2.

keep one's powder dry*

be ready, be prepared, alert oneself; see prepare 1.

take a powder*

run away, abandon, desert; see leave 1.

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powder usage examples

converse of object

- curry: You could also try this recipe with oily fish like salmon or tuna, with a little more curry powder to spice things up.

adjective modifier

- crystalline: The most popular form of coke is a white crystalline powder.

modifies a noun

- diffraction: A detailed section on powder diffraction is also provided, along with a PDF file with slightly different content to the online notes.

noun used with modifier

- talcum: Pour talcum powder onto the stain, leave overnight.

more usage examples

The word usage examples above have been gathered from various sources to reflect current and historical usage. They do not represent the opinions of YourDictionary.com.

powder quotes

Our name for problems is significant. We call them headaches. You take a powder and they are gone.
-Acheson, Dean Gooderham

Put your trust in God, my boys, and keep your powder dry. See Forgy 330:25.
-Blacker, Valentine

A ship is always referred to as 'she' because it costs so much to keep her in paint and powder.
-Nimitz, Admiral Chester (William)

more quotes

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Published by the American Pharmaceutical Association
2215 Constitution Avenue NW, Washington, DC 20037-2985, USA
www.aphanet.org
and the Pharmaceutical Press
1 Lambeth High Street, London SE1 7JN, UK
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© 1986, 1994, 2000 American Pharmaceutical Association and Pharmaceutical Press

First edition 1986

Second edition 1994

Third edition 2000

Printed in the United States of America

ISBN: 0-85369-381-1 (UK)
ISBN: 0-917330-96-X (USA)

Library of Congress Cataloging-in-Publication Data

Handbook of pharmaceutical excipients / edited by Arthur H. Kibbe.--3rd ed.

p. ; cm.

Includes bibliographical references and index.

ISBN 0-917330-96-X

1. Excipients--Handbooks, manuals, etc. I. Kibbe, Arthur H. II. American Pharmaceutical Association.

[DNLM: 1. Excipients--Handbooks. QV 735 H236 2000]

RS201.E87 H36 2000

615'.19--dc21

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Calcium Carbonate

1. Nonproprietary Names

BP: Calcium carbonate
 JP: Calcium carbonate
 PhEur: Calcii carbonas
 USP: Calcium carbonate; carbonic acid, calcium salt (1:1);
 calcium carbonate (1:1).

2. Synonyms

Cal-Carb; creta preparada; E170; *Millicarb*; *Pharma-Carb*; precipitated calcium carbonate; precipitated carbonate of lime; precipitated chalk; *Sturcal*.

3. Chemical Name and CAS Registry Number

Carbonic acid, calcium salt (1:1) [471-34-1]

4. Empirical Formula Molecular Weight

CaCO_3 100.09

5. Structural Formula

CaCO_3

6. Functional Category

Tablet and capsule diluent; therapeutic agent

7. Applications in Pharmaceutical Formulation or Technology

Calcium carbonate, employed as a pharmaceutical excipient, is mainly used in solid-dosage forms as a diluent.⁽¹⁻³⁾ It is also used as a base for medicated dental preparations, and as a buffering and dissolution aid in dispersible tablets.⁽⁴⁾ Calcium carbonate is used as a bulking agent in tablet sugar-coating processes and as an opacifier in tablet film-coating.⁽⁵⁾ Calcium carbonate is also used as a food additive and therapeutically as an antacid and calcium supplement.⁽⁶⁾

8. Description

Calcium carbonate occurs as an odorless and tasteless white powder or crystals.

9. Pharmacopeial Specifications

| Test | JP | PhEur | USP |
|-------------------------------------|---------|---------|----------|
| Identification | + | + | + |
| Loss on drying | ≤ 1.0% | ≤ 2% | ≤ 2% |
| Acid-insoluble substances | ≤ 0.2% | — | ≤ 0.2% |
| Substances insoluble in acetic acid | — | ≤ 0.2% | — |
| Fluoride | — | — | ≤ 0.005% |
| Arsenic | ≤ 4 ppm | ≤ 4 ppm | ≤ 3 ppm |
| Barium | + | + | + |

(Continued)

| Test | JP | PhEur | USP |
|------------------------------------|--------------|--------------|--------------|
| Chlorides | — | ≤ 330 ppm | — |
| Lead | — | — | ≤ 3 ppm |
| Iron | — | ≤ 200 ppm | ≤ 0.1% |
| Heavy metals | ≤ 20 ppm | ≤ 20 ppm | ≤ 0.002% |
| Magnesium and alkali(metals) salts | ≤ 1.0% | ≤ 1.5% | ≤ 1.0% |
| Sulfates | — | ≤ 0.25% | — |
| Mercury | — | — | ≤ 0.5 ppm |
| Assay (dried basis) | 98.5%-100.5% | 98.0%-100.5% | 98.0%-100.5% |

SEM: 1

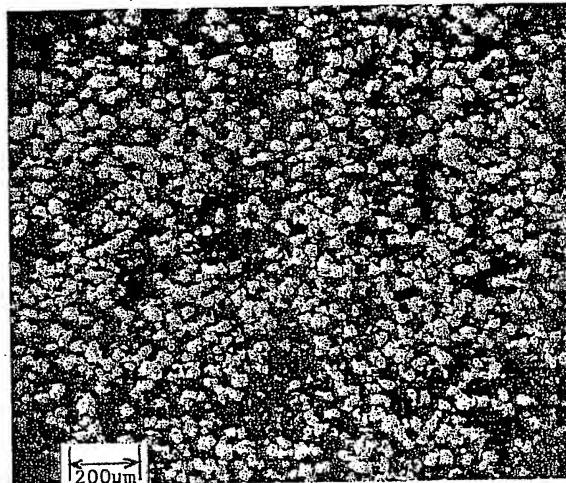
Excipient: Calcium carbonate

Manufacturer: Whittaker, Clark & Daniels

Lot No: 15A-3

Magnification: 600 \times

Voltage: 20kV



10. Typical Properties

Acidity/alkalinity: pH = 9.0 (10% w/v aqueous dispersion)

Compressibility: See Fig. 1.^(a)

Density (bulk): 0.8 g/cm³

Density (tapped): 1.2 g/cm³

Flowability: cohesive

Hardness (Mohs): 3.0 for *Millicarb*

Melting point: decomposes at 825°C

Moisture content: See Fig. 2.^(a)

Particle Size: See Figs. 3^(a) and 4.^(b)

Refractive index: 1.59

Solubility: practically insoluble in ethanol (95%) and water

Solubility in water is increased by the presence of ammonium salts or carbon dioxide. The presence of alkali hydroxides reduces solubility.

Specific gravity: 2.7

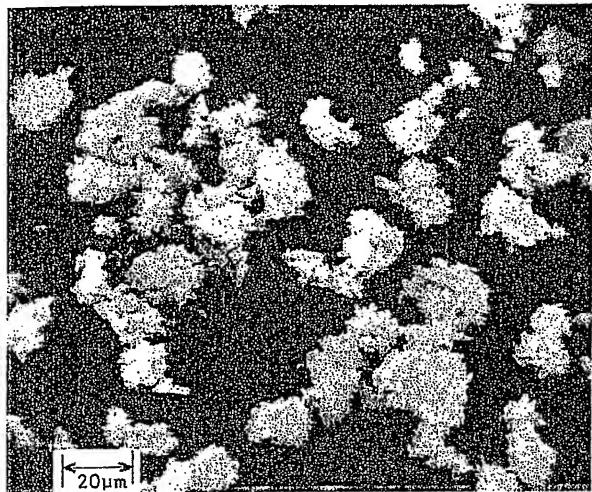
Specific surface area: 6.21-6.47 m²/g^(b)

^(a) *Handbook of Pharmaceutical Excipients*, First Edition.

^(b) Results of laboratory project for third edition.

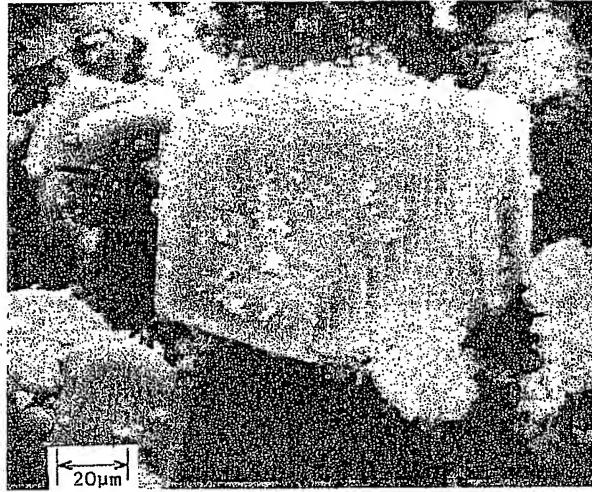
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Excipient: Calcium carbonate
Manufacturer: Whittaker, Clark & Daniels
Lot No: 15A-3
Magnification: 2400 \times
Voltage: 20kV



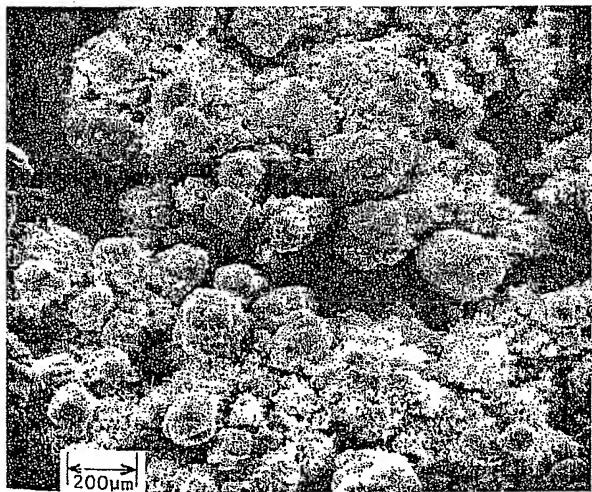
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Lot No: 15A-4
Magnification: 2400 \times
Voltage: 20kV



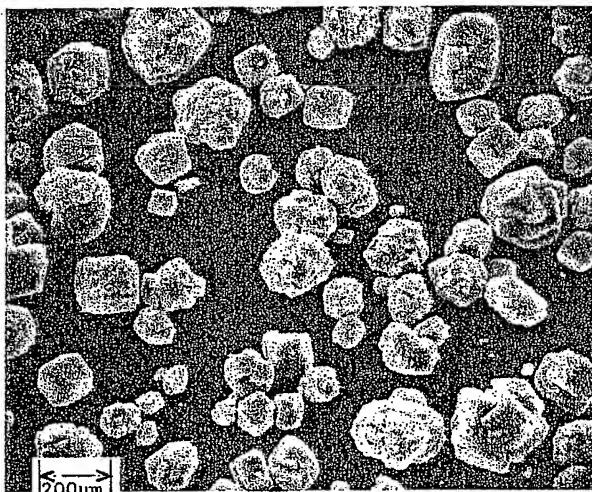
SEM: 3

Excipient: Calcium carbonate
Manufacturer: Whittaker, Clark & Daniels
Lot No: 15A-4
Magnification: 600 \times
Voltage: 20kV



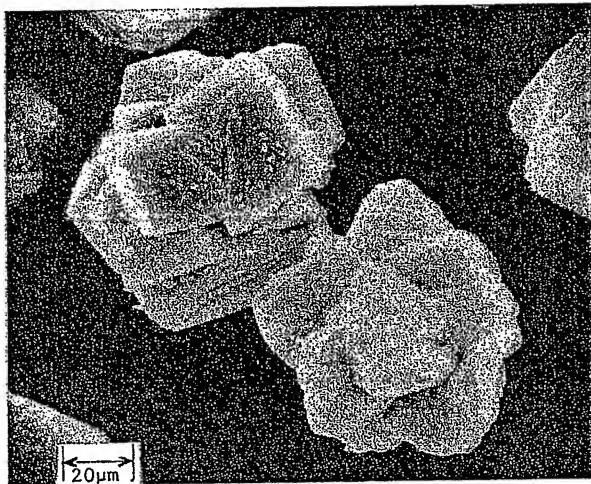
SEM: 5

Excipient: Calcium carbonate
Manufacturer: Whittaker, Clark & Daniels
Lot No: 15A-2
Magnification: 600 \times
Voltage: 20kV



SEM: 6

Excipient: Calcium carbonate
 Manufacturer: Whittaker, Clark & Daniels
 Lot No: 15A-2
 Magnification: 2400 \times
 Voltage: 20kV

**11. Stability and Storage Conditions**

Calcium carbonate is stable and should be stored in a well-closed container in a cool, dry place.

12. Incompatibilities

Incompatible with acids and ammonium salts (*see also Sections 10 and 19*).

13. Method of Manufacture

Calcium carbonate is prepared by double decomposition of calcium chloride and sodium bicarbonate in aqueous solution. Density and fineness are governed by the concentration of the solutions. Calcium carbonate is also obtained from the naturally occurring minerals aragonite, calcite, and vaterite.

14. Safety

Calcium carbonate is mainly used in oral pharmaceutical formulations and is generally regarded as a nontoxic material. However, calcium carbonate administered orally may cause constipation and flatulence. Consumption of large quantities (4-60 g daily) may also result in hypercalcemia or renal impairment.⁽⁷⁾ Therapeutically, oral doses of up to 1 g are employed as an antacid. Calcium carbonate may interfere with the absorption of other drugs from the gastrointestinal tract if administered concomitantly.

LD₅₀ (rat: oral) 6.45 g/kg.⁽⁸⁾

15. Handling precautions

Observe normal precautions appropriate to the circumstances and quantity of material handled. Calcium carbonate may be irritant to the eyes and on inhalation. Eye protection, gloves, and a dust mask are recommended. Calcium carbonate should be handled in a well-ventilated environment. In the UK, the

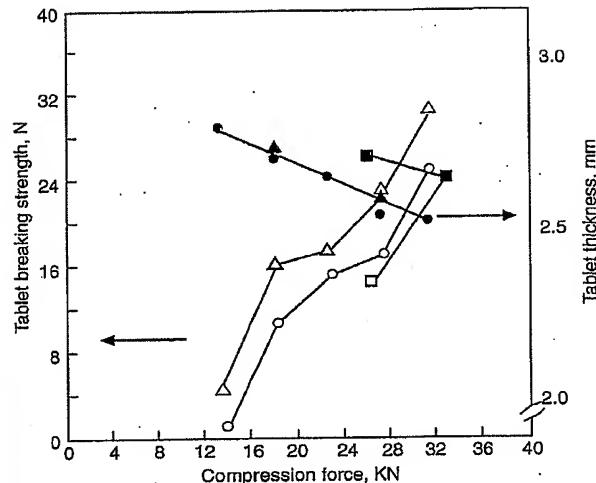


Fig. 1: Compression characteristics of calcium carbonate.

○● : Unlubricated, Carver laboratory press
 △▲ : Lubricated, Carver laboratory press

□■ : Lubricated, instrumental Stokes model F-single punch press

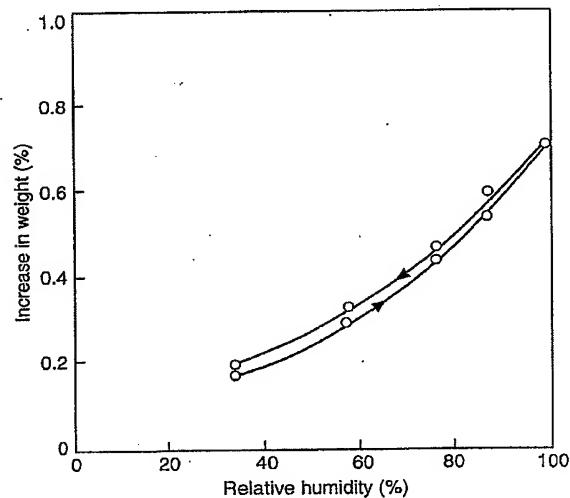


Fig. 2: Moisture sorption-desorption isotherm of calcium carbonate.

long-term (8-hour TWA) occupational exposure limit for calcium carbonate is 10 mg/m³.⁽⁹⁾

16. Regulatory Status

GRAS listed. Accepted for use as a food additive in Europe. Included in FDA Inactive Ingredients Guide (oral capsules and tablets, and otic solutions). Included in nonparenteral medicines licensed in the UK.

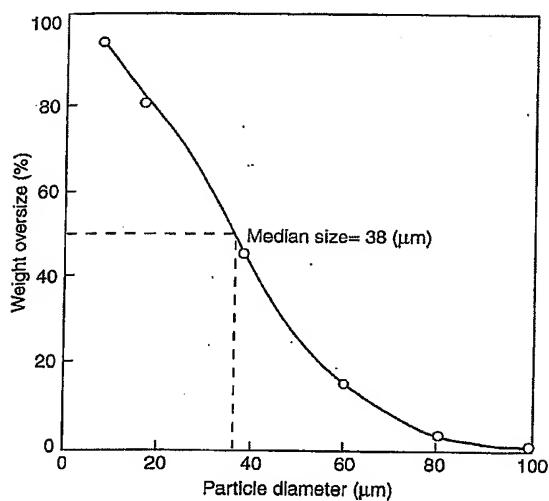


Fig. 3: Particle-size distribution of calcium carbonate.

17. Pharmacopeias

Eur, Int, Jpn, Pol, and US.

18. Related Substances

Directly compressible tablet diluents containing calcium carbonate and other excipients are commercially available.

19. Comments

When used in tablets containing aspirin and related substances, traces of iron may cause discoloration. This may be overcome by inclusion of a suitable chelating agent. Grades with reduced lead levels are commercially available for use in antacids and calcium supplements.

20. Specific References

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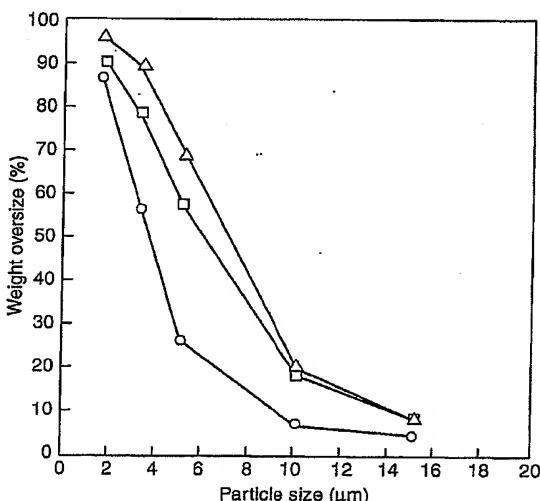


Fig. 4: Particle-size distribution of calcium carbonate. (Sturcal, Rhone-Poulenc Inc.)

○ : Sturcal F

□ : Sturcal H

△ : Sturcal L

- Kaus LC. Buffers and buffering agents. In: Swarbrick J, Boylan JC, editors, *Encyclopaedia of Pharmaceutical Technology*, volume 2. New York, Marcel Dekker, 1988; 213-231.
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